PATENT ABSTRACTS OF JAPAN

(11)Publication number : 08-087870
(43)Date of publication of application : 02.04.1996

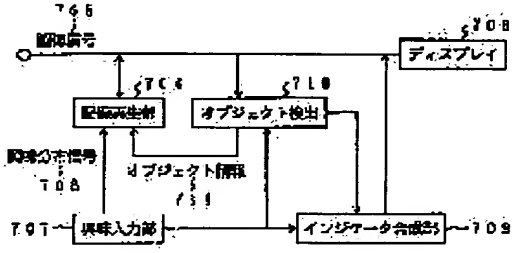
(51)Int.Cl. G11B 27/28

(21)Application number : 06-246844
(22)Date of filing : 16.09.1994

(71)Applicant : TOSHIBA CORP
(72)Inventor : AOKI HISASHI
ENDO NAOKI
KITAORI MASASHI
KATO TAKEHISA
KANEKO TOSHIMITSU
NUMAZAKI SHUNICHI

(54) INFORMATION PROCESSOR

(57)Abstract:
PURPOSE: To present information required by a user efficiently through simple operation by inputting an evaluation value related to a desired information unit for reproduced and presented record information and then recording the evaluation value while relating to the information unit.
CONSTITUTION: An image recording/reproducing section 704 receives an external image signal 705 which is then presented at a display section 706. An operator inputs the position and intensity of an interested object at an interest input section 707 while viewing a screen. Consequently, the input section 707 generates an interest distribution signal 708 which is recorded in a recording section 704 along with an image and an indicator synthesizing section 709 receives the signal 708 to output an image signal for synthesizing an indicator. That signal is displayed at the display section 706 along with an image and an object detecting section 710 separates or integrates the compositional object of an image to produce information 711 which is recorded at a recording section 704. Consequently, information required by a user can be reproduced efficiently through simple operation and displayed.



LEGAL STATUS

[Date of request for examination] 27.07.2001

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]	3629047
[Date of registration]	17.12.2004
[Number of appeal against examiner's decision of rejection]	
[Date of requesting appeal against examiner's decision of rejection]	
[Date of extinction of right]	

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1] The information processor carry out having provided an information playback means reproduce the recorded information, a presentation means show the information reproduced by this information playback means, the input means for inputting the evaluation value about a desired information unit to the information which this presentation means was shown, and the evaluation value record means match and record the evaluation value inputted by this input means on said information unit as the description.
[Claim 2] The information processor according to claim 1 characterized by to provide further a presentation state-control means perform control which changes the presentation condition of this specific object set as the input object of this evaluation value according to this evaluation value when the evaluation value about the specific object of the information shown with said presentation means is inputted from said input means.
[Claim 3] An information playback means to reproduce the recorded information, and a presentation means to show the information reproduced by this information playback means, The evaluation value record means which comes to record the evaluation value about a desired information unit beforehand to the information which this presentation means was shown, When said information by which said evaluation value was matched and recorded on the predetermined information unit with this evaluation value record means is shown again, The information processor characterized by providing the control means which controls either [at least] the playback by said information playback means, or the presentation by said presentation means based on said evaluation value.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention relates to the multimedia information processor which displays, records, reproduces and edits the information on an image, voice, a document, etc. integrative.
[0002]
[Description of the Prior Art] As equipment which displays, records, reproduces and edits information, the technical field has been established for each information system of every so that it may be represented by a video tape recorder (VTR), a cassette tape recorder, etc. for the word processor for document information, and an image and speech information. A lot of information can be treated now also with prevalent cheap equipment according to increase of the storage capacitance by the densification of record media, such as improvement in the throughput by innovation of semiconductor technology and a circuit base technique, a floppy disk, and a magnetic tape, an optical disk. In connection with it, the method of showing simple and efficiently what a user needs out of the information of a lot of has been devised for every technical field. For example, there are frequency study of the word in the kana-kanji conversion of a word processor, JP,4-192751,A by which the technique about an electronic newspaper is indicated.
[0003] However, a means for it to be related especially with an image and voice, to input and record evaluation of the key for presentation with such sufficient effectiveness, i.e., the height of an interest peculiar to a user, and to show based on it had the large place undertaken to a help. Although the index signal was automatically recorded on the starting position of an image transcription when mentioning VTR as the example, the user had to write down the program name and performer name in preparation for next use. In the cassette tape recorder which carries out [voice] record playback, when there is also no information which generally shows the starting position of record to everything but whether to be silent and an owner sound and two or more information was continuously recorded on one cassette tape, even the break had a possibility of becoming unknown.
[0004] In recent years, development of the equipment which applies a computer and can process such information integrative tends to progress, and the amount of information which can be processed and accumulated at once also tends to become immense. In such an environment, a means to by_which a means to have inputted and recorded the evaluation of the height of an interest peculiar to a user to information as mentioned above, and to show based on it fitted each technical fields, such as a word processor, an electronic newspaper, and VTR, was used as it was, and a means to by_which evaluation of the height of an interest can be processed corresponding to the integrativeness of the different-species information which is the description of equipment did not have it. [enough] There is nothing that deals with evaluation of the degree of association of each information and a user, i.e., the height of an interest, although there is a thing with the link structure which newly shows the relation of a different kind between information. For this reason, the equipment with which a user can enjoy the information on a variety large quantity cannot acquire the target information from an informational class and the

numerousness of amounts easily on the contrary, though gained. There is nothing that specifies whether it should be heard if which information is seen preferentially for information required for itself to come to hand so much, and acquire the outline for a short time. Therefore, there is also a possibility that the situation where the effectiveness of information access is bad and cannot fully employ the function of equipment efficiently may arise. Since there is much amount of information which should be evaluated as mentioned above even if it is going to evaluate the height of an interest in order to avoid this, evaluating itself forces a burden upon a user.
[0005] On the other hand, research which performs height evaluation of the interest of the information to a user automatically as a system is also advanced. However, after information comes to hand, in order to automate all processes until it does partial division at a meaningful unit (an image to the word from a text, person, etc.) and evaluates the degree of an interest for a user, **** is indispensable in human being's advanced information processing mechanism, and complication of a system is caused. Moreover, in order to respond to a user's various subjectivity, fragmentation of the information unit which should be processed does not escape performing image processing which recognizes even the very detailed unit of an accessory, since a certain person may bear a positive feeling against the impression of the whole image and a certain person may get interested in the accessory of the person in an image, also in case the image of one sheet is treated, for example etc. It is subdivided at this time and most processed information will become unnecessary for almost all users. In order to avoid fragmentation, evaluation of a "minority group" user must be rejected and those who cannot use equipment may produce it at this time. This is because information processing was performed without mediation of an intention of a user.
[0006]
[Problem(s) to be Solved by the Invention] As mentioned above, there was no means to process classification, arrangement, etc. efficiently [information / various] exceeding an informational class in the conventional information processor reflecting an intention of a user. For this reason, the user had to cleave time amount and an effort to processing of that information, and also when this was automatically performed as equipment, he had the fault that it was adapted for each user and could not necessarily process.
[0007] This invention is made in consideration of the above-mentioned situation, and aims at offering the information processor which can present efficiently the information which a user needs from from among the information on a variety large quantity by simple actuation.
[0008]
[Means for Solving the Problem] An information playback means to reproduce the information on which the information processor concerning the 1st invention was recorded, A presentation means to show the information reproduced by this information playback means, and the input means for inputting the evaluation value about a desired information unit to the information which this presentation means was shown, It is characterized by providing an evaluation value record means to match and record the evaluation value inputted by this input means on said information unit.
[0009] In the information processor which the information processor concerning the 2nd invention requires for the 1st invention When the evaluation value about the specific object of the information shown with said presentation means is inputted from said input means, It is characterized by providing further a presentation state control means to perform control which changes the presentation condition of this specific object set as the input object of this evaluation value according to this evaluation value.
[0010] An information playback means to reproduce the information on which the information processor concerning the 3rd invention was recorded, A presentation means to show the information reproduced by this information playback means, and the evaluation value record means which comes to record the evaluation value about a desired information unit beforehand to the information which this presentation means was shown, When showing again said information by which said evaluation value was matched and recorded on the predetermined information unit with this evaluation value record means, it is characterized by providing the control means which controls either [at least] the playback by said information playback means,

or the presentation by said presentation means based on said evaluation value.
[0011] A means by which the information processor concerning the 4th invention inputs an important point/needlessness into equipment gradually by little actuation of a user's burden, A means to judge the high part of an interest in presentation information based on actuation of the above-mentioned user, The means which shows the height of an interest numerically based on actuation of the above-mentioned user, and a means to match and output the above-mentioned presentation information and the above "the numeric value of the height of an interest", The outputted above-mentioned presentation information and a means to record the above "the numeric value of the height of an interest", It is characterized by providing a means to control the part which presents the information to which it was given, and a means to accumulate and calculate "the numeric value of the height of an interest" attached, and to update it with several presentation of the same information, based on the recorded above "the numeric value of the height of an interest."
[0012] In the equipment which shows a user the information which can transmit the information processor concerning the 5th invention as a lightwave signal or an electrical signal By the actuation to which the user contacted equipment, or actuation in which a user changes the distance of the part of his own body to equipment The electrical characteristics (at least 1 of a flow, resistance, capacity, or inductances) of the component in a circuit are changed. It has the circuit constant which changed, or the evaluation value output section which changes and outputs the frequency of the change to the discrete value signal chosen one as a user's evaluation value over presentation information from the continuation value signal or a different value of three or more pieces, and is characterized by matching the above-mentioned evaluation value with presentation information, and outputting it.
[0013] In the equipment which shows a user the information which can transmit the information processor concerning the 6th invention as a lightwave signal or an electrical signal The sound pitch which the user generated using his own body or instrument, magnitude, its height, or the change frequency of magnitude as a user's evaluation value over presentation information It has the evaluation value output section changed and outputted to the discrete value signal chosen one from the continuation value signal or a different value of three or more pieces, and is characterized by matching the above-mentioned evaluation value with presentation information, and outputting it.
[0014] In the equipment which shows a user the information which can transmit the information processor concerning the 7th invention as a lightwave signal or an electrical signal It has the user-state output section which measures a user's living body-change of state. It has the evaluation value output section which changes into the discrete value signal chosen one as a user's evaluation value over presentation information from the continuation value signal or a different value of three or more pieces based on the value outputted from the above-mentioned user-state output section, or its value-change frequency, and is outputted. It is characterized by matching the above-mentioned evaluation value with presentation information, and outputting it.
[0015] In the information processor of the 5th invention, the 6th invention, or the 7th invention, the information processor concerning the 8th invention is characterized by responding to the inputted size of an evaluation value, and emphasizing or degrading presentation information, when a user inputs the above-mentioned evaluation value.
[0016] The information processor concerning the 9th invention is characterized by performing and re-showing partial selection of presentation information to the presentation information which added the above-mentioned evaluation value according to the size of the added evaluation value in the information processor of the 5th invention, the 6th invention, or the 7th invention.
[0017] In the equipment which shows a user the information which can transmit the information processor concerning the 10th invention as a lightwave signal or an electrical signal It has the directions coordinate output section which outputs the coordinate of one point directed by the user in a 2-dimensional flat surface or three-dimensions space. Based on the migration hysteresis of the directed point, subjective evaluation of the user to presentation information is given as a discrete value signal chosen one from the continuation value signal or a different value of three or more pieces, and it is characterized by matching the above-mentioned

evaluation value with presentation information, and outputting it.
[0018] In the information processor of the 10th invention, the information processor concerning the 11th invention is characterized by responding to the inputted size of an evaluation value, and emphasizing or degrading presentation information, when a user inputs the above-mentioned evaluation value.
[0019] The information processor concerning the 12th invention is characterized by performing and re-showing partial selection of presentation information to the presentation information which added the above-mentioned evaluation value according to the size of the added evaluation value in the information processor of the 10th invention.
[0020] In the equipment which shows a user the information which can transmit the information processor concerning the 13th invention as a lightwave signal or an electrical signal It has the directions coordinate output section which outputs the coordinate of one point directed by the user in a 2-dimensional flat surface or three-dimensions space. Based on the migration hysteresis of the directed point, subjective evaluation of the user to presentation information is given as distribution on presentation information of the discrete value signal chosen one from the continuation value signal or a different value of three or more pieces, and it is characterized by matching the above-mentioned evaluation value distribution with presentation information, and outputting it.
[0021] In the information processor of the 13th invention, the information processor concerning the 14th invention is characterized by responding to the inputted size of an evaluation value, and emphasizing or degrading the part of presentation information or presentation information, when a user inputs the above-mentioned evaluation value distribution.
[0022] The information processor concerning the 15th invention is characterized by performing and re-showing partial selection of presentation information to the presentation information which added the above-mentioned evaluation value according to the size of the added evaluation value in the information processor of the 13th invention.
[0023] In the equipment which shows a user the information which can transmit the information processor concerning the 16th invention as a lightwave signal or an electrical signal The sensor arranged a keyboard, a keyboard, or in the shape of a single dimension is used. A user directs the frequency distribution on a single dimension shaft at once. Or the above-mentioned keyboard, a keyboard, It has the evaluation value distribution output section to which it pointed serially using the one-dimensional-array sensor and which equipment presumes the frequency distribution on a single dimension shaft from the path of a motion of one point, and changes and outputs the frequency distribution to a signal, and is characterized by matching the above-mentioned evaluation value distribution with presentation information, and outputting it.
[0024] The information processor concerning the 17th invention has the evaluation value-distribution output section to each point of the shown 2-dimensional information which was directed by the user in three-dimensions space and which is outputted as evaluation value distribution, and is characterized by to match the above-mentioned evaluation value distribution with presentation information, and to output it in the equipment which shows a user the information which can be transmitted as a lightwave signal or an electrical signal.
[0025] In the information processor of the 17th invention, the information processor concerning the 18th invention is characterized by responding to the inputted size of an evaluation value, and emphasizing or degrading the part of presentation information or presentation information, when a user inputs the above-mentioned evaluation value distribution.
[0026] The information processor concerning the 19th invention is characterized by performing and re-showing partial selection of presentation information to the presentation information which added the above-mentioned evaluation value according to the size of the added evaluation value in the information processor of the 17th invention.
[0027]
[Function] The range which was related to various information, such as a document which should be shown, an image, and voice, in the information processor concerning this invention, and was set as the object of the evaluation peculiar to a user to the information, and its evaluation by actuation of the user itself Or by observing the conditions (for example, a fixation point,

temperature, etc.) of the user who has accessed information Or when it calculates at the beginning and a system guesses these actuation and observation, it does not depend according to an informational class and its whole information, or a part, but has a means to give on the same criteria.
[0028] Therefore, in the case of information playback, a user can access preferentially from important information based on the given evaluation of a user and the record about the evaluated range.
[0029] By this, even if the supplied original information is a variety large quantity, the whole information is grasped efficiently for a short time, or it becomes easy to search for the target thing out of the information on the variety large quantity.
[0030]
[Example] Hereafter, the example of this invention is explained, referring to a drawing.
[0031] (The 1st example) In the 1st example, what inputs the intensity distribution on a 1-dimensional shaft as a device which inputs interest is used. Drawing 1 is the conceptual diagram of the display 700 used by this example, and the interest input pad 701 is attached in the body of equipment. this interest input pad 701 lengthens the piezoelectric device from which it is an attachment **** pressure-distribution sensor oblong, and resistance changes to the screen 702 lower part according to a pressure corresponding to the width of face of a screen in the shape of a rod (to lengthwise direction in drawing), and arranges this in the longitudinal direction in drawing in the shape of an array. Therefore, according to the interest input pad 701, the pressure distribution of the longitudinal direction in drawing are detectable serially. The amount of [of for example, a piano keyboard] white key part etc. is in such a thing.
[0032] Those who are looking at the screen can adjust optionally the location which pushes the interest input pad 701, and its strength according to the degree of the interest, corresponding to the location where its interesting thing was displayed. By drawing 1 , three persons are displayed and the condition of having inputted interest to the person of the left in it is shown. At this time, the triangular interest indicator 703 superimposes to the screen upper and lower sides on a screen. This interest indicator 703 is taught to those who operate the strongest location and strength of the interest inputted into the interest input pad 701 with a location and brightness.
[0033] Of course, it is also possible for the physical relationship of Screen 702 and the interest input pad 701 not to be limited to this example, for example, to arrange an interest pad perpendicularly beside a screen. In this case, distribution of interest serves as a lengthwise direction. Moreover, it is also possible to arrange an interest input pad in piles on a screen by using a transparent pressure sensor. In this case, it can set also to a lengthwise direction also in a longitudinal direction as distribution of interest by the configuration of a pressure sensor. Anyway, since such an interest input pad 701 can detect pressure distribution to the ability of the conventional selection key or a piezo-electric type actuation sheet to input only positional information, it essentially differs in that it can input as intensity-distribution information about a location. If the input means which is flexible in this way is used for the input of interest, it is very effective for it.
[0034] Moreover, the means of the interest indicator 703 can also consider various approaches. For example, it is not the brightness of an indicator and the change of a color in red from blue can also be used for expressing the strength of interest. Moreover, the object which is interested with the object detection described below is presumed, and changing the profile brightness by the strength of interest is also considered. At any rate, the input of interest can be made easy by displaying the description all over a screen according to intensity distribution. Moreover, the place to direct is not specified as the place whose interest is max. For example, it is interested in two places, and when the degree of the location and interest is inputted with an interest input pad, an interest indicator can also be attached about the two places. This is easily realizable by detecting the peak from the pressure distribution of an interest indicator. Moreover, it is also an effective approach to express distribution of interest with the expression approach according to the contour line of a topographical map or it on a screen.
[0035] Furthermore, various equipments can be considered besides a pressure-distribution sensor which was mentioned above as an interest input unit. Moreover, it is also possible to

consider positional information equipment like the conventional piezo-electric sheet as this substitution. Next, this is described.

[0036] Although only positional information is originally acquired from a piezo-electric sheet, it is assumed that imagination interest distribution is there. This is shown in drawing 2 . In drawing 2 , interest distribution of Yamagata smooth as a core is assumed for this location using the information are interested in the location A on which the pen was put. This distribution is decreased with time amount in the location on which increase and a pen are not put in reinforcement with time amount in the location on which the pen was put. Therefore, in the location where a motion of the pen which those who are looking at the screen move according to interest is small, the degree of interest becomes strong with time amount, and the degree of interest will become small in the location where a motion of a pen is large. In order to observe this to the point that a more interesting object is finer, generally, it supports well that a motion of a pen becomes an automatically small thing. This becomes whether to be ** by the case where the input of the location by the look is considered instead of the input of a location with a pen. that is, an interesting object is comparatively long -- time amount gaze is carried out. Therefore, the degree of interest can be measured by making such interest distribution accumulate in time.

[0037] Now, supposing the location of interest moves from A to B, as drawing 3 shows, distribution of the interest suited the location A is decreased promptly, it will change and interest distribution centering on a location B will increase. Thus, the input of the interest location which was mistaken in order to decrease the interest of a basis with a certain time constant to change of a momentary interest is avoidable. It is easy to explain that this assumes a look input. That is, although it will be inputted as a look is suitable there and it is interested in there if the thing unusual [some] is seen, in fact, it breaks out frequently that it is removed from the object of interest when what object it is is able to understand. In this case, it is because it is necessary to hold intensity distribution to some extent although set as the object of interest until now.

[0038] Since a time increment or reduction of such interest distribution is a parameter called people's interest in it, peculiar processing is carried out. Drawing 4 is the graph which showed the degree of interest to the very thing to the time amount which was looking at the thing with people. Intuitively, people do the long duration gaze of it according to the degree of interest so that clearly. However, this graph shows that the gaze beyond a certain time amount does not necessarily have a big interest to the very thing in fact. For example, although looks gather in middle of the screen automatically when big scenery is seen, it is not necessarily interested in the clouds of middle of the screen. Moreover, while the pen which inputs interest is carrying out long duration quiescence in a certain location, those who operate it do not necessarily have an interest strong against the thing in the location, and cannot specify the object which is conversely interested in many cases. With the time amount property of such a man's interest, the increment and reduction of interest intensity distribution which are accumulated by the interest location serve as a function of time amount.

[0039] Drawing 5 shows the augend per unit time amount of interest distribution centering on this location to the time amount to which the inputted interest stays at a specific location. That is, when residence time is small, augend serves as forward, and as stated previously, the degree of interest increases with time amount. However, it considers that possibility that there is no specific interest in this location after passing over a certain time amount t0 is high, and moves from interest distribution to attenuation. Drawing 5 serves as the form where drawing 4 was differentiated needless to say, and can reflect people's interest faithfully by this. In addition, of course, the time amount t0 which interest distribution converts into negative from forward changes with input devices, and since it is various, it enables it to adjust time amount t0 to arbitration by this example also with individuality and skill level of those who operate it.

[0040] Moreover, since this parameter changes also with the properties of the target image, in this example, a parameter is automatically set up with image display initiation using the index information recorded with the image. The information about a movie, music, scenery, and the contents of a dialogue, the information about signal processing, such as compression elongation,

or the information specially added for the purpose of this parameter actuation, etc. is included in this index information.

[0041] Drawing 6 is the outline block diagram of the interest parameter creation time of this example. The picture signal 705 inputted from the outside from the image recording playback section 704 is displayed by the display section 706. It is equipped with the interest input section 707 which is the device which inputs interest as drawing 1 showed near the screen of this display section 706.

[0042] As explained previously, an operator inputs the location and the strength of interest of his interesting object, looking at a screen using this interest input section 707. After performing predetermined signal processing which the interest input section 707 mentioned above in response to this input, the interest distribution signal 708 is generated. And this interest distribution signal 708 is recorded on the image recording playback section 704 with an image. At this time, it processes synchronously so that interest distribution and an image may be in agreement in time.

[0043] In parallel to the above-mentioned processing, the object location and strength of interest are sent also to the indicator composition section 709, in the indicator composition section 709, generate the video signal which compounds an indicator and superimpose this with a picture signal in the display section 706. By this, an operator can check easily the input situation from the interest input section 707.

[0044] The object detecting element 710 has the function to extract an image object from a picture signal. The image object said here points out each element image about the contents of the image which constitutes an image. For example, since people, a tree, etc. have the appearance-description, respectively, they are disengageable from an image. Or it can also be concluded by profile detection processing of an image that one image is constituted by simple forms, such as a circle and a square. In such a case, it can also be considered that each of the simple forms is an image object. In the object detecting element 710, while separating serially the object which constitutes an image and adding the suitable label for them, the object which should be unified on semantics is unified, referring to distribution of an interest parameter.

[0045] An example is shown and this integration is explained. For example, suppose that there were the face 803 and coat 808 which were obtained from profile detection processing like drawing 7 (b) in Screen 802 to which the person 801 is reflected like drawing 7 (a). Those who operate it here do not recognize the "face" as an object, and are doing recognition as a "person" to the "face" in accordance with the "coat." In this case, the field of a face 803 and the field of a coat 808 make it a basis for a big difference not to arise in an interest parameter (drawing 7 (c)), and can judge it to be what should be unified as a "person." On the other hand, since there is a gap of an interest parameter clearly for a "face" and a "background", these should not unify. Interest parameter distribution of the part corresponding to the field A obtained by profile detection in fact and the field B obtained similarly is computed, and the value of A and B unifies the following [a predetermined threshold], and considers as the integrated object C.

[0046] It is recordable on the Records Department 704 with the interest distribution signal 708 by making information about the description of this object into the object information 711.

[0047] This object detecting element 710 and the interest input section 707 function very efficiently by cooperating mutually. That is, since the object detecting element 710 can know the location (distribution) set as the object of the interest of those, who are looking at the image, it is limiting the image range of analysis near this location, and can omit analysis processing about the part which has not been set as the object of interest. Thereby, hardware of the object detecting element 710 can be simplified. On the other hand, the detected object information can specify a now interesting object by being sent to the indicator composition section 709. Not only the location of an object but the information about the appearance is included in object information. Therefore, the indicator composition section 709 can change the profile brightness of image objects (people, tree, etc.) set as the object of interest as an indicator in which the degree of interest is shown. That is, he is interested, the profile for [which has inputted the degree] an image becomes bright by the degree of interest, or since it can check to ****** that a color changes, the input of interest becomes still easier. In other words, how to make [to

make an image hard to see moderately, while those who are looking at the image are operating nothing, and] legible only the part in which the input which means a high interest was made according to an input is also considered. In this case, it has ways, such as lowering the resolution other than the approach of deteriorating a color which makes a profile indefinite and which makes brightness dark, as mentioned above (part without actuation).
[0048] Drawing 8 is an outline block diagram at the time of playback of this example. It is reproduced in the record playback section 704, and the picture signal recorded with object information and an interest distribution signal serves as an image on a display 706, and makes it possible to appreciate this. Suitable processing is performed by the object display 712 and the object information 711 reproduced by coincidence is displayed on the display section 706 with a subject-copy image. by this, it is about the profile of an object in the case -- a number, a label, etc. can be displayed on an object from information incidental to ******** and an object.
[0049] The interest analyzor 713 discriminates an interesting scene from the reproduced interest distribution signal 708, and controls delivery and this for the control signal 714 in the record playback section 704 according to this. moreover, it is about this object in the case by directing the object set as the object of the interest in an image to the object display 712 -- ****** squirrel **** becomes possible.
[0050] Next, the analysis algorithm performed by the interest analyzor 713 is explained.
[0051] Time amount change of the interest which paid its attention to one object becomes a property as shown in drawing 9 . That is, when a certain time amount t1 changed the scene from the start of a scene, it is the time amount which looks for that from which those who look at it are set as the object of interest out of a screen. When this object is set as the object of interest, the reinforcement of interest starts promptly. Then, the time amount which those who are looking at the image stare at it according to interest, and he understands continues. It is expected that the degree of the interest at this time responds to the strength of a momentary interest. Furthermore, if a temporary understanding and recognition finish and it begins to look for the following interest object, the strength of interest will begin attenuation gradually. And a scene will be ended while the strength of interest has not turned to 0 (end in drawing). this invention person discovered that it was very effective to use the product of the time interval from time amount t1 to t2 and the peak level P1 in the meantime which cuts a certain threshold level P0, interest parameter =(t2-t1) xP1 [i.e.,], as a parameter by which the interest of this object is characterized by general time amount transition of such an interest.
[0052] In the interest analyzor 713 of this example, the above count is performed and it is considering as the interest parameter of an object. By the way, when two persons are having a dialog on the news scene etc., as for the intensity distribution of the strength of interest, two or more peaks appear in time. That is, since the interest to those who have spoken becomes high automatically, the object of interest goes back and forth on one scene, and two or more interest peaks appear like drawing 10 by this. At this time, an interest parameter can be obtained by calculating and adding each peak ****** interest. At this example, an interest parameter is interest parameter =P1*(t2-t1) +P2* (t4-t3).
It becomes.
[0053] Or time quadrature of an interest parameter is performed about the time amount to which an interest parameter exceeds a predetermined threshold, and it is good also as an interest parameter concerning the object in the value.
[0054] Now, it returns to drawing 8 and the actuation at the time of playback is explained. An interest parameter is attached as mentioned above for every object by which the interest distribution signal 708 reproduced in the record playback section 704 appears in each scene by the interest analyzor 713. Although the value decided beforehand may be used for the criteria interest reinforcement used in that case, it can also be set as arbitration by the interest input section 707 of drawing 6 .
[0055] This interest parameter is used in order to search the object according to the degree of interest. For example, the digest which can grasp the contents of an image in a short time can be automatically created by making time order reproduce the scene in which an object with a bigger interest than a certain level appears. Furthermore, it becomes possible by making it

reproduce in order of the magnitude of interest regardless of time amount to search a desired image for a short time. Moreover, the identifier according to individual is given to object information, and in the case where coincidence of the object in each scene is clear, the magnitude of the interest of those, who look at it, can be measured for every object in a program, and it becomes the leading means which uses the whole program as a work with a big charm. Moreover, when such a program is actually broadcast and time amount transition of the audience rating becomes clear, it becomes clear immediately which object attracted attention on the scene with a high audience rating, and it can use for program manufacture of a high audience rating. Such effectiveness measures and records the degree of interest when a different appreciation person looks at the same information sequences (a program, movie, etc.), respectively, and it is performing accumulation operations, such as / (sum total of the interest parameter of the everybody about a certain object) (number), and can expect to increase objectivity more. If same processing is performed also when it is not necessary to perform such an accumulation operation only to an always different appreciation person and the same person looks at the same sequence two or more times, it cannot be overemphasized that it is expectable to obtain the interest parameter with which the man's interest was screened.

[0056] (The 2nd example) Drawing 11 is the outline block diagram of the 2nd example of this invention.

[0057] Below, the example which used as the two-dimensional dynamic image original information used as the object which should evaluate, and used the input device used as a means by which a user gives evaluation as the so-called mouse (pointing device which moves on a flat surface) is explained.

[0058] A user operates a mouse 501, looking at a dynamic image on a screen (not shown). Although a user may put and show the free field place in a screen in principle, using the approach of mentioning later etc., he puts with nature the part in which especially himself got interested, and shows it. The motion of a mouse is serially calculated by the device driver 502, and the coordinate information 503 indicating one in the screen corresponding to actuation of a user is supplied from a device driver 502. On the other hand, the screen is divided in the shape of a grid, and the storage section 504 is assigned to each field (or component) of every [which was divided]. At the are recording control section 505, "1" is added to the storage section 504 corresponding to the coordinate information 503 with the mouse 501 at that time as a mouse stay count with the decided time interval. Therefore, if the motion of a mouse has stopped, the numeric value memorized by the storage section 504 corresponding to the field will increase and go. Thus, the interest distribution 509 of the user about the whole screen is acquired. On the other hand, the image information 506 shown is inputted into the field presumption section 507. the field presumption section 507 -- inter-frame -- image analysis is performed by the well-known image-processing approaches, such as edge detection from difference, and the consecutive relation of the field divided in the shape of [above-mentioned] a grid is presumed. Although presumption of consecutive relation was explained in the 1st example, the case where it is that in which the input of the degree of interest has two-dimensional breadth is explained anew here.

[0059] For example, in Screen 602 to which the person 601 is reflected like drawing 12 (a), the field 604 where a part also contains the face 603 obtained from beige field detection is recorded as a continuation group 605 (drawing 12 (b)). Similarly, the field 606 containing a coat 608 is treated as another continuation group 607. The field presumption section 507 reports group information 508 of a division field to the group integrated section 519 by the above-mentioned technique. In the group integrated section 519, the mouse stay number of counts in the inside and outside of the group boundary line by group information 508 acquired as mentioned above is compared, the boundary which was larger than the value the difference was decided to be is retained, the small boundary is extinguished, and two or more groups are unified. Thus, the group integrated is considered to be a thing near the boundary divided after that human being senses. That is, even if it is seeing the same person, it is because it can expect that the mouse retention will attain to the whole person when interest exists in the whole person, and it concentrates on a face when interest exists only especially in a face. In this way, below, the group integrated is

made to call it an "object."
[0060] Next, the object interest decision section 510 calculates the height of the interest of the user for every object based on the object and the interest distribution 509 which were determined. This processing is made by doing the division of the number of counts which the mouse ****ed to a view object in the magnitude of an object into total, i.e., the predetermined time, of the interest distribution 509 in a view object, and making this into the degree 511, i.e., the object interest information, on interest about the view object within view time amount. Moreover, as the 1st example explained, the approach of carrying out time quadrature of the value of interest information, and making the integral value the value of the interest information about an object about the time amount to which the height of the value of the method of using for the time amount section width of face beyond a predetermined value the value which integrated the value of the maximum interest information within the time amount section, or interest information exceeds a predetermined threshold, etc. is sufficient as the height of the value of interest information.
[0061] The field presumption section 507 receives the interest distribution 509 and feedback of the object interest information 511, and compensates the continuity of the object by time amount progress. Even if the location is changing in another frame which the object recognized to be A with a certain frame follows by this, it is recognized as A. The synchronization with the image information 506 which became origin is taken, and the object interest information 511 acquired as mentioned above is outputted with the object field information 512.
[0062] At the Records Department 513, the object interest information 511 and the object field information 512 are recorded with the image information 506 which became origin, or its storing location information. This serves as data like drawing 13 . By processing of carrying out time quadrature of the object interest information 511 for every object, and doing the division of this by the appearance time amount of the object on the other hand, the degree of the interest in the whole presentation unit (for example, one movie) is calculated, and it records similarly as object accumulating-totals interest information 514.
[0063] The recorded object interest information 511 can be made to act in case a user reproduces an image separately. The approach is shown below.
[0064] The interest information decode section 515 reads the object interest information 511 already recorded through the playback section 518, and all once saves it in the interest information storage section 516. The interest information processing section 517 determines the object which was high as for interest sequentially from a high order through the whole. Next, based on the command of the interest information processing section 517, the playback section 518 reproduces only a need part from an output terminal 520. As it specifically indicates drawing 14 "Only a need part is reproduced" In case it reproduces usually through the whole, mask the object which was low as for interest (611 in drawing 14 (a)). only the scene where the height of interest which reproduces only the scene containing the object which was high as for interest (612 in drawing 14 (b)) contains two or more objects of a high order is reproduced -- etc. (613 in drawing 14 (c)) etc. -- it is . By such technique, a user can get the epitome which was adapted for itself, without carrying out complicated actuation anew. Moreover, by measuring and accumulating the object interest information 511 and the object accumulating-totals interest information 514 for every same user who looked at the same media, and another user, it was stabilized or can expect to converge on an objective interest. In the share media on rental software or a network, the popularity vote of every characters (namely, object) can also be performed using this.
[0065] In this example, although the two-dimensional dynamic image was mentioned as original information, as long as it seems that a mouse can show one point of a three dimension, the same technique as the dynamic image of a three dimension (stereo) may be applied. Moreover, by projecting a motion of a mouse on one dimension, it may apply to information (music and thing which carried out stereophonic recording of the meeting) with breadth on either side, and interest may be concerned for every musical instrument or speaker as an object.
[0066] In this example, although a dynamic image, music, etc. mentioned that to which information changes in time, they can use the same technique also to a static image. The object

interest information 511 can be given and recorded [output and] on a photograph etc. by this. Similarly, a document can also be dealt with as a static image. Moreover, in the case of the information which stood it still in this way, the playback section 518 can align automatically only the object which was high as for interest, and can create a spatial epitome.

[0067] Although the mouse was mentioned as an input device used as a means by which a user gives evaluation, in this example, other things may be used as long as it is the device which has the function of pointing like a pen, a tablet, a trackball, a touch panel, a joy stick, a digitizer, etc. Moreover, instead of a mouse putting as mentioned above and detecting the shown location, look detection may be used and the same processing as the above-mentioned may be performed to the location currently seen. in this case, human being -- interest -- **** -- since their eyes are almost turned to the part which is in the inside of unconscious, a feeling of resistance can expect more that the object interest information 511 near the degree of a true interest is acquired few.

[0068] As stated to the beginning of this example, especially a user also has the approach he puts with nature the part which got interested, and shows it. If it is voice to make [which will lower resolution if it is an image except the part which has inputted a high interest] it dark, to change a color, etc., will carry out conversion of it by the approach of lowering sound volume, changing tone quality, and it is hard to see, or this is making it hard to be audible. by this, he wants to see a user -- it is -- it is -- it is forced to carry out actuation which shows a high interest inevitably to a part to hear.

[0069] (The 3rd example) The 3rd example of this invention is explained.

[0070] Drawing 15 is the outline block diagram showing this example. In this example, original information used as the object which should evaluate shall be used as a two-dimensional dynamic image, and the mouse which specifies the coordinate on two-dimensional as a user's input means shall be used.

[0071] The two-dimensional dynamic image used as the object which should evaluate is accumulated in the original information storage section 305 in the form where coding processing was performed. In order to reproduce this information, original information is sent to a decoder 304. A decoder 304 carries out sequential decoding of the sent original information, and changes two-dimensional dynamic-image information into the signal suitable for a display (not shown). Moreover, a decoder sends serially the information (for example, time code etc.) which part of a current dynamic image is reproduced to the time amount control section 302 at this time.

[0072] A user performs serially evaluation of whenever [interest / over the dynamic image /, and interest], looking at the two-dimensional dynamic image displayed on the display connected to the image output terminal 307. The input of whenever [interest and interest] is performed by operating the mouse which can move the flat-surface top connected to the mouse signal input terminal 306 to the time amount of the arbitration sensed that a user wants to input evaluation. That is, a user inputs evaluation by performing existing mouse actuation corresponding to the evaluation for which it opted, when a dynamic image is evaluated. How to move a mouse to the form of O, **, and x as the approach of actuation while pressing a mouse button, for example, and the method of inputting figures, such as 1, 2, 3, and ..., while pressing a mouse button similarly can be considered. Here, by moving a mouse to the form of O, O, **, and x, with a mouse clicked explains the case where evaluation of whenever [interest and interest] is inputted. However, interest is considering as time [of smallness] ** and the thing which inputs the form of x at the time of smallness which nothing inputs a little, when it is into adult time O a little, adult time O and.

[0073] A user presses a mouse button first, when it senses that he wants to input evaluation of whenever [interest and interest]. The signal which shows that the mouse button is pressed at this time is sent to the cursor location hysteresis information storage section 300. From the mouse, the impaction efficiency information on the display screen of a mouse cursor is serially sent to the cursor location hysteresis information storage section 300 with the short fixed time interval besides this carbon button down signal.

[0074] The cursor location hysteresis information storage section 300 which received the carbon button down signal accumulates the positional information of the mouse cursor in the condition,

i.e., the condition that the carbon button down signal is sent, that subsequent fixed time amount and a mouse button were pressed. Such cursor location hysteresis information can be expressed by the approach of expressing with binary whether to the point on a two-dimensional coordinate, while the carbon button had been pushed, the mouse cursor passed, the approach of expressing as a list only the coordinate which the mouse cursor passed while the carbon button had been pushed, etc.

[0075] Since a mouse button begins to be depressed, after fixed time amount passes, the cursor location hysteresis information storage section 300 sends cursor location hysteresis information to the two-dimensional pattern recognition section 301. moreover, the signal with which a mouse button shows that the user started the input to coincidence at the time of depression ******** is sent to the time amount control section 302. Above, as an example of an input configuration, although O, O, etc. were mentioned, a pattern is not restricted to this. For example, concentration/emission of a motion of the mouse in a screen are recognized, and there is also the approach of changing into an interest parameter.

[0076] In the two-dimensional pattern recognition section 301, the received cursor location hysteresis information is recognized as a two-dimensional pattern which the user inputted, and the normalization of size etc. is pretreated. And similarity with the two-dimensional pattern which input configuration O decided beforehand, O, **, x, and a user inputted is calculated, and a most similar pattern is chosen. The selected pattern is recognized to be the pattern which the user inputted, and is sent to the interest parameter transducer 303.

[0077] The interest parameter transducer 303 determines what kind of value is given as which time amount part of a dynamic image as an interest parameter which shows the degree of interest from the pattern sent from the two-dimensional pattern recognition section, and the hour entry spent from the time amount control section 302.

[0078] The hour entry spent from the time amount control section 302 presumes and computes the playback time amount of the dynamic image considered that the user tried to give evaluation. In the time amount control section 302, when a user starts an input, it can know which part of a dynamic image was reproduced. This can be specified as a meaning with the time code given to the dynamic image. After a user generally decides to give whenever [interest and interest], by the time it actually depresses a mouse button, it will be thought that there is time difference slightly. If adjustment which gives whenever [interest and interest] to the part currently slightly reproduced at the last time is performed in the time amount control section 302, it is more effective than the part currently reproduced in consideration of this time difference when the mouse button was actually pressed.

[0079] The interest parameter transducer 303 gives the interest parameter equivalent to the pattern sent to the particular part (for example, frame) of a dynamic image from the two-dimensional pattern recognition section 301 based on the hour entry spent from the time amount control section 302. Under the present circumstances, although it is also possible to give an interest parameter only to one frame, it is more effective if the interest parameter which changes smoothly over several frames of order is given in fact. For example, as shown in drawing 16 , interest parameter I (t) which changes smoothly is given in the direction of time amount. The output of the interest parameter transducer 303 is the set of the group of the interest parameter given to some dynamic images corresponding to a hour entry and its hour entry, and this is sent to the original information storage section 305.

[0080] In the original information storage section 305, an interest parameter is actually connected and recorded on a dynamic image according to the information sent from the interest parameter transducer 303.

[0081] Although the above was explanation of the approach of giving the interest parameter which shows whenever [interest and interest] to the time of the arbitration of a dynamic image, an interest parameter can also give only one value to one dynamic image. The value of such an interest parameter is realizable by calculating and giving the time average of the value of the interest parameter in the all time of a dynamic image. Moreover, since it is hard to come only by the average out of the difference between dynamic images, as the 1st example explained An interest parameter is related with the time amount to which the method of using for the time

amount section width of face of the time amount section beyond a predetermined value or the whole dynamic image the value which integrated the maximum interest parameter value within the time amount section, or an interest parameter exceeds a predetermined threshold. The approach of carrying out time quadrature of the interest parameter, and making the integral value the interest parameter of the whole dynamic image etc. may be used. It is also effective to also give values, such as the value which performed desired statistics processing, for example, the maximum of an interest parameter, the minimum value, and distribution, to the value of an interest parameter.

[0082] in this example, although the two-dimensional dynamic image was used as original information, even if it uses a solid dynamic image, voice, music, etc. as original information on other, grant of an interest parameter has come out by the same approach. Moreover, in the information which does not change in time, for example, a two-dimensional still picture, a solid still picture, a document, etc., since grant of an interest parameter can be performed by evaluation using only 1 time of a mouse, it can realize more easily.

[0083] Moreover, although notations and figures, such as O and **, were inputted from the motion of cursor when the mouse button is pressed above, the approach a user tells only input initiation and termination of such a notation by click, and other time amount does not push a carbon button is also possible. Moreover, when there is a motion which always completely observes aging of a cursor location not using the mouse button, and can be recognized to be a notation about the input of the notation which shows the degree of these interest, the approach it is considered that is an input is also possible.

[0084] Furthermore, as an input device besides the mouse used by this example, whether it uses pointing devices, such as a three-dimension mouse, a trackball, a touch panel, a joy stick, a tablet, and a digitizer, or uses a user's view for an input or uses for an input the actuation as which a user instructs it with a finger etc. using a CCD camera using look detection, it is clear that grant of an interest parameter can be performed by the same approach.

[0085] (The 4th example) The 4th example of this invention is explained.

[0086] Drawing 17 is the outline block diagram showing this example. By this example, original information which should be evaluated is used as a two-dimensional static image, and it explains as a thing using the mouse which specifies the coordinate on two-dimensional as a user's input means.

[0087] Two or more indication of the still picture currently recorded on the original information storage section 313 is given at the display (not shown) connected to the image output terminal 315. The display and control section 310 is controlling in what kind of magnitude two or more still pictures are displayed on which location of a display. When two or more still pictures lap and are displayed, vertical-related control of a still picture is also performed. Moreover, in order to display a still picture, it requires that desired still picture data should be read to the original information storage section 313, and still picture data are received.

[0088] The display and control section 310 of this example is characterized by changing the resolution of the still picture displayed on a display depending on the input from the mouse connected to the mouse input terminal 314. That is, when a user moves onto a desired still picture and clicks a mouse cursor, the resolution of the specified still picture improves and, on the other hand, a display and control section controls the resolution of the still picture except having been specified to get bad to the degree of pole. Therefore, if a user chooses the still picture which senses interest and it does not specify with a mouse, seeing a still picture with high resolution is not allowed. For this reason, the higher still picture of interest specifies well inevitably, it is made to display with high resolution, and the time amount on which the low still picture of interest was displayed with high resolution becomes short. Thus, if the display control of this example is used, the degree of a user's interest will be reflected in the high resolution display time for every still picture.

[0089] a user specifies one still picture with a mouse, and improves the resolution of the specified still picture -- making (resolution of other still pictures being worsened at coincidence) -- the information which specifies the specified still picture, and the specified time of day are sent to the display time measurement section 311. In the display time measurement section 311,

the accumulating totals of the time amount displayed with high resolution for every still picture are calculated and memorized. And if a certain unit of display time passes, the display time measurement section 311 will spend accumulating-totals high resolution display time according to a still picture at the interest parameter transducer 312 -- fixed time amount passes, it is specified by the user, or a still picture is eliminated from on the display screen.
[0090] In the interest parameter transducer 312, the accumulating-totals high resolution display time according to sent still picture is changed into the interest parameter showing the degree of a user's interest. Generally, the value of an interest parameter is changed so that the longer still picture of accumulating-totals high resolution display time may become large. And the group of the value of the information which specifies a still picture, and an interest parameter is sent to the original information storage section 313.
[0091] In the original information storage section 313, the value of an interest parameter is written in the attribute data of still picture data according to the information from the interest parameter transducer 312.
[0092] Although the resolution of the still picture currently displayed described above the example which changes depending on a user's input, it is also possible to indicate by the still picture so that it may be made to depend for resolution on elapsed time from the time of a user inputting for example. That is, whenever time amount passes since assignment according [the resolution of each still picture] to a user's mouse, a display and control section 310 controls to worsen. For example, resolution is changed as shown in drawing 18 . Thus, by controlling, a mouse cursor must be periodically moved and clicked to the still picture which a user wants to see with high resolution. Therefore, the degree of interest to a user's still picture is reflected also in the count of a click besides high resolution display time. Therefore, the value of an interest parameter is also computable by measuring the count of a click for every still picture.
[0093] In the above example, a user's interest parameter has a large place depending on the combination of the still picture displayed on coincidence. That is, if the interest of the still picture currently displayed on coincidence also with the still picture in which the user is not so much interested is low, the interest parameter of a big value may be given also to a still picture without so much interest. In order to lose such un-arranging, it is good to enable it to update accumulating-totals high resolution display time serially, and to give the average interest parameter to the combination of various still pictures. It is necessary to also record accumulating-totals high resolution display time besides an interest parameter as attribute data of a still picture at this time.
[0094] Although the input device used by this example is the mouse which can specify a two-dimensional coordinate, even if this, of course, uses pointing devices, such as a trackball, a touch panel, a joy stick, a light pen, a tablet, and a digitizer, and the pointing device which specifies the point on three-dimension coordinates, such as a three-dimension mouse, it is realizable.
[0095] In the above, how to input the temporal response of a user's interest through an input device was described.
[0096] Below, how to use the inputted degree of interest is described.
[0097] As an approach of processing a playback image and voice according to the degree of interest in the real time, it reproduces again about an interested (the degree of interest is high) part by the inputted degree of a user's interest. There is treatment of fast forwarding and flying about an uninterested (the degree of interest is low) part.
[0098] If the video software for education is taken for an example, in a scene with a high (I do not understand well or want to know in detail) interest, slow playback will be carried out and processing of moving to the following scene with a rapid traverse or a skip will be performed on a scene with a low (he understood well or it understands) interest.
[0099] When inputted like the case where the degree of interest is inputted in many phases, or an analog signal, there is a method of changing reproduction speed according to the magnitude of the value. For example, when a value is large, it is usually playback, when a value is somewhat small, it fast forwards, and there is a method of skipping in a part with the value near 0.
[0100] Above-mentioned processing is possible even if it uses the degree of interest inputted in the real time, and even if it uses the degree of the interest which records the degree of interest

and was recorded, it is possible.
[0101] As other examples using the degree of the recorded interest, again, when reproducing the target image and voice, there is the approach of reproducing only the high place of the degree of interest and reproducing like the digest version.
[0102] One scene with the still larger degree of interest (for example, the degree of interest considers that the time amount section more than a predetermined threshold is a scene the time quadrature of the interest parameter in a scene like the 1st example for every high scene or scene) The maximum of the interest parameter within the time amount section is integrated, a scene with the high addition value is outputted to a screen like an icon, and a user has the approach of choosing a favorite scene and reproducing in the time amount to which the degree of interest is over the threshold.
[0103] Moreover, it asks for the inclination of the variation of the degree of interest, a scene with the steep inclination is iconified as mentioned above, and there is the approach of outputting and choosing it as a screen.
[0104] Moreover, although the two-dimensional static image was taken up and explained as original information, this can add an interest parameter by processing with the same said also of a dynamic image and a document. Moreover, an interest parameter can be given by the same processing by changing not resolution but voice level also about voice.
[0105] (The 5th example) The 5th example of this invention is explained hereafter.
[0106] The outline block diagram of the 5th example is shown in drawing 19 .
[0107] First, the example which directs the height of a user's interest with three values is explained.
[0108] Here, when a user experiences an image, voice, and an alphabetic character, the pride of if interesting, if sad, feeling, such as being pleasant, is called the height of interest, or degree of interest.
[0109] For example, it is [- 1 / ... Suppose that he completely has no interest.] the height of interest like drawing 20 1 ... It is interesting and is 0... Usually
[0110] A user inputs the height of interest from the input device 201 about the music and voice which is reproduced from the record playback device 207 represented by the animation, still picture and alphabetic character image which was reproduced in the playback section 206 from the record playback device 207 represented by VTR, and was shown by image display devices, such as a display 202, or audio equipment, and is outputted to a loudspeaker 203 etc.
[0111] Here, "-1" is inputted when it is sensed that it is completely uninterested in "0" when interest is sensed and interest is seldom sensed for "1." For example, in the case of 2 carbon-button mouse (201-1 in drawing 20), if a left carbon button is clicked, "1" will be inputted, and "-1" will be inputted if a right carbon button is clicked. Approaches other than the approaches of inputting "1" or "-1" -- "0" clicks the right or a left carbon button twice -- are taken. As other input devices, what can input three values, such as a three-position switch (201-2 in drawing 20) and a button switch (201-3 in drawing 20), can be considered. In addition, it is also possible to divide the degree of interest still more finely and to enable it to direct so that it may mention later.
[0112] The value by which the directions input was carried out is given to the interest parameter processing section 204 as a wave-like signal like for example, 212 in drawing. In the interest parameter processing section 204, an interest parameter is generated based on this signal, and it gives a record medium 207 and a control section 205. An interest parameter is associated and stored in information in a record medium 207. Moreover, a control section 205 performs predetermined playback control etc. to the playback section 206 based on an interest parameter.

[0113] Next, the case where the degree of interest is divided still more finely is explained.
[0114] For example, the case where the degree of interest is expressed in 11 steps is considered like drawing 21 . In such a case, two methods of displaying a degree as an approach of directing the degree of interest, on the screen which does not display a degree on a screen can be considered.
[0115] The case where a degree is not displayed is in the situation (for example, hurt by

displaying) which cannot be displayed on a screen, or the situation which hears music and voice, and the numeric value may be beforehand displayed on the input device like drawing 22 at this time. A user chooses [while looking at a screen, or] the numeric value according to the degree of interest, hearing music and voice.

[0116] When displaying a degree on a screen, as shown in drawing 23 , a user directs and inputs the degree of interest by operating a pointing device.

[0117] Next, the case where the degree of interest is stepless and is expressed is explained. In such a case, as shown in drawing 24 , the degree of interest serves as a gestalt of an analog signal.

[0118] Two methods of displaying a degree as an approach of directing the degree of interest also in this case, on the screen which does not display a degree on a screen can be considered. When not displaying, a user operates an input device according to interest, and outputs the degree of interest.

[0119] When displaying a degree, a user changes the value of the interest displayed on the screen according to his interest using an input device.

[0120] When displaying the value of interest on a screen, you may always display among playback time amount, and may display for every scene change of every time amount of a certain, a movie, or a drama.

[0121] Or as the 4th example explained, you may make it change the resolution of the image displayed depending on the value into which it was inputted. That is, resolution improves and, on the other hand, a control section 205 controls the resolution of the image except having been specified by the scene where the user gave the high value to get bad to the degree of pole. Therefore, if a user does not specify the value of a high interest as the still picture which senses interest, seeing a still picture with high resolution is not allowed. For this reason, the higher still picture of interest specifies highly inevitably, it is made to display with high resolution, and the time amount on which the low still picture of interest was displayed with high resolution becomes short. Thus, if the display control of this example is used, the alter operation according to the degree of interest will be inevitably demanded from a user.

[0122] What has the pointing device represented by a mouse, a trackball, a tablet, a touch panel, a light pen, the digitizer, etc., a rolling mechanism like a variable resistor, a sliding mechanism, etc. as a device which inputs the degree of interest which these-changes, and the thing which outputs the signal with which some differ like a multiple contact switch are mentioned. Moreover, the thing using bending stress, such as a strain gage, the thing which inputs a value by /A user bringing bodily [some] close and keeping away using a distance robot, and a user turn a rotation object, and there is a thing using the rotational frequency etc.

[0123] Furthermore, as an approach a user inputs the degree of interest unconsciously, stress of a user's sweat rate, a pulse, a heart rate, an electroencephalogram, and muscles, the count of nictitation, etc. detect the amount which changes with the exterior and internal stimuli mentally, and have the approach of inputting the variation of the degree of interest according to the variation. Moreover, there is a method of using a user's voice. This presupposes that interest is high in the part which the user uttered [laughing voice], or the part where the tone changed. As an example at the time of using this voice, the scene to which a spectator's interest became high in the movie theater etc. can be specified from a spectator's laughing voice, a cry, etc.

[0124] In the above, how to input the temporal response of a user's interest through an input device was described.

[0125] Below, how to use the inputted degree of interest is described.

[0126] As an approach of processing a playback image and voice according to the degree of interest in the real time, it reproduces again about an interested (the degree of interest is high) part by the inputted degree of a user's interest. There is treatment of fast forwarding and flying about an uninterested (the degree of interest is low) part.

[0127] If the video software for education is taken for an example, in a scene with a high (I do not understand well or want to know in detail) interest, slow playback will be carried out and processing of moving to the following scene with a rapid traverse or a skip will be performed on a scene with a low (he understood well or it understands) interest.

[0128] When inputted like the case where the degree of interest is inputted in many phases, or an analog signal, there is a method of changing reproduction speed according to the magnitude of the value. For example, when a value is large, it is usually playback, when a value is somewhat small, it fast forwards, and there is a method of skipping in a part with the value near 0.
[0129] Above-mentioned processing is possible even if it uses the degree of interest inputted in the real time, and even if it uses the degree of the interest which records the degree of interest and was recorded, it is possible.
[0130] As other examples using the degree of the recorded interest, again, when reproducing the target image and voice, there is the approach of reproducing only the high place of the degree of interest and reproducing like the digest version.
[0131] Furthermore the integral value of the absolute value of the variation of the degree of interest is calculated, and it is one scene (for example, like the 1st example for every scene of the beginning of time amount until the degree of interest becomes + from - and becomes - again, or scene) with the large value. The maximum of the interest parameter within the time amount section is integrated, a scene with the high addition value is outputted to a screen like an icon, and a user has the approach of choosing a favorite scene and reproducing in the time amount to which the degree of interest is over the threshold.
[0132] Moreover, it asks for the inclination of the variation of the degree of interest, a scene with the steep inclination is iconified as mentioned above, and there is the approach of outputting and choosing it as a screen.
[0133] The degree of this interest can be used for music information, and music can be made newly. An approach is shown in drawing 25 . In drawing 25 , A (intro) of interest of music 1 is high, the parts of interest of B and C are high with music 2, and D (ending) of interest is high with music 3. Since a key ("tunes", such as F major and ** E minor) and rhythm (3 rhythm =3/4, and 4 rhythm = 4/4 etc.) differ from II Tempo, each music does not turn into music only by tying as it is. Then, a user inputs the key of the music which he wants to make, rhythm, and II Tempo. Based on the inputted parameter, selected music 1-A, Music 2-B, C, and music 3-D are modulated, arranged and outputted. Thus, a user with little musical knowledge can also use the phrase which he likes, and can write music easily. In how to choose for a sound department of musical matters here (A, B, etc.), the approach of integrating the maximum of the interest parameter within the time amount section to the time amount to which the degree of interest is over the threshold, and the addition value adopting a thing higher than the corresponding point of other music as it is taken like the 1st example for every part, for example.
[0134] Moreover, when this music title is recorded by the MIDI signal, the sound of each PERT's musical instrument can also be used according to interest.
[0135] Furthermore, it is also possible to write music combining the phrase which the user composed.
[0136] Below, the example using the accumulation value of the degree which processed the degree of interest statistically is described.
[0137] for example, a sound -- easy software -- if -- statistics of the degree of the interest for every music is taken, and the statistic is preferentially reproduced from the largest music, or changes the sequence of music.
[0138] Moreover, in one video tape, according to the statistic of the degree of interest, it indicates by the index and searchs in video software.
[0139] In rental software, whenever [according to / the count rented using this statistic] popular, whenever [which is depended on the height of interest / popular] can be measured. For example, although early outlook was not high, this approach is very effective when saying that it was interesting with it being unexpected, if it actually sees.
[0140] In the above, how to measure and use the degree of interest was described. These are performed to the regenerative signal recorded on various record media.
[0141] There is a method of using the degree of interest besides the regenerative signal recorded on the record medium. For example, in two-way communication, it is possible not only an audience rating survey but to choose a scene with a viewer's high interest etc. in a program at TV program, a radio program, etc., and it is also possible to create a hit chart automatically in

a music program.
[0142] (The 6th example) The 6th example of this invention is explained. The 6th example is characterized by performing depth map detection for an input of an interest parameter. Drawing 26 shows the rough configuration of the 6th example. Here, the information which gives a parameter presupposes that it is a dynamic image.
[0143] The depth map detecting element 901 detects and outputs the depth map made by a user's hand etc. The approach of scanning a means (for example, thing currently used for the automatic focus device of a camera etc.) to apply the light source to an object object, to catch the reflected light by the location sensing element as a means for depth map detection, and to compute distance by trigonometry, two-dimensional can be considered. A user can input an interested location and its strength as the location and its distance value of the field where a distance value is small in a depth map by operating pointing out and lengthening a hand in the location corresponding to an interested location in the image displayed now etc. If the depth map information 902 is inputted into the cursor display 903 at this time and the cursor display 903 displays cursor on the location on the screen (not shown) according to the minimum point of distance, it will become easier to perform a user's alter operation.
[0144] Since the depth map information 902 outputted from the depth map detecting element 901 serves as a user's interest parameter as it is, if the thing (it is called the interest parameter image) and subject-copy image which normalized a depth map or this are recorded on coincidence, with an interest parameter, a subject-copy image can be controlled by later and it can reproduce later.
[0145] The frame interest parameter calculation section 904 calculates total (frame interest parameter 913) of the interest parameter within one certain frame. If it looks at this frame interest parameter on a time-axis, it can know how the degree of the interest about that dynamic image of a user changed with time amount. At this time, it is also considered that the criteria of evaluation over a dynamic image change with time amount. Then, the result to which the valuation-basis amendment section 905 amended fluctuation of a valuation basis is outputted in the phase which the frame interest parameter input of the whole dynamic image ended. Here, after the amendment result of a valuation basis comes out, it is very good in the approach of recording a frame interest parameter, only the information on amendment is recorded (for example, only in case of fluctuation of the reference value of a frame interest parameter), and how to amend for amendment information is also considered, reproducing, when using a frame interest parameter later. Moreover, if amendment information is recorded, when reproducing an interest parameter image, it can also amend. Drawing 26 has described as the latter.
[0146] The subject-copy image 906 is inputted into the dynamic image and coincidence which are inputted as an interest parameter to a user's dynamic image. The scene change detecting element 907 detects the scene change section of a subject-copy image. Here, the steep place of temporal responses, such as color distribution information, can be taken out as the scene change section. Moreover, the scene interest parameter grant section 908 asks for the average of the frame interest parameter about one scene, and outputs it as a scene interest parameter 909. If this print-out is used at the time of next playback, the scene beyond a value with a scene interest parameter can be taken out, and it can reproduce.
[0147] The object extract section 910 divides a dynamic image per object, and outputs the object information 911. Thus, as the 2nd example explained, from evaluation of the difference of the interest parameter of object inside and outside, the divided object may unify two or more objects, and may newly deal with them as one big object. This object information includes the identification information and the information on an existence region on the object which exists for every frame.
[0148] The object interest parameter grant section 912 outputs the interest parameter (object interest parameter) 914 to an object using the object information 911, the depth map information 913, and the scene change information 915. The interest parameter to the object within one frame may be decided as an average value of the interest parameter in an object existence region, and may be decided with the maximum (distance is min) of the interest parameter in an

object existence region. As an object interest parameter, the average value of the interest parameter to the same object is computed through the average value of the interest parameter to a certain object which changes in time, and the interest parameter of the same object within the same scene, and the whole dynamic image. As the 1st example explained the approach of this calculation, approaches, such as making into the interest parameter of that scene to an object what integrated that time amount section width of face to the value of the interest parameter which recorded the highest about that object within the predetermined time sections, such as a scene, are taken.

[0149] A gap arises at the time of day generated by the difference in the load of the processing performed in the subject-copy image described until now, an interest parameter image, a frame interest parameter, a scene interest parameter, an object interest parameter, **, and the interior. The time difference amendment section 916 absorbs the difference of such time amount, in time, takes a synchronization and outputs all information. Moreover, by this example, although five kinds of information is outputted, naturally a configuration (some components which correspond from drawing 26 were removed) which outputs some of these is also considered.

[0150] Next, the case where a static image is treated is described. What is necessary is just to operate a part among the configurations of drawing 26 , when treating a static image. That is, since a static image does not have change of time amount shaft orientations, the frame interest parameter calculation section 904, the scene change detecting element 907, the scene interest parameter calculation section 908, the time difference amendment section 916, and the valuation-basis fluctuation amendment section 905 do not need to operate. The object extract of the inputted static image is carried out by the object extract section 910. The interest parameter image outputted from the depth map detecting element 901 has the semantics as an interest of a user when seeing the static image fixed time. The object interest parameter grant section 912 totals the sum of the interest parameter value in the inside of the existence region of a certain object still in time, and is taken as the interest parameter to the object.

[0151] (The 7th example) Next, the 7th example of this invention is described. The outline configuration of this example is as being shown in drawing 27 , and the configuration of those other than image-processing section 920 is the same as that of drawing 26 , and its same is said of work of each component. The image-processing section 920 is a means to process in a subject-copy image according to the interest parameter which a user inputs. When a user shows interest, processing of this subject-copy image is performed so that it may become more legible according to that degree about the place which showed that interest. For example, about the field beyond a value (for example, t) with interest parameter value, a subject-copy image is displayed as it is, and an interest parameter multiplies and displays p (<1) on the pixel value of a subject-copy image about the field below b (that is, it is made dark at a fixed rate). When the interest parameter has taken the value x between t and b, /(1(x-b)-p) (t-b)+p is hung and displayed on the pixel value of a subject-copy image. Since the part can be more vividly seen when a user gives a powerful interest parameter, an interest parameter can be inputted more into nature. The method of processing of a subject-copy image can consider not remaining in this, for example, performing mosaic processing, obscuring an edge part, etc.

[0152] (The 8th example) Next, the 8th example of this invention is described. It is as being shown in drawing 28 , and except the point of having formed the information storage section 930, the digest creation directions section 931, and the digest creation section 932, the outline configuration of this example is the same as that of drawing 27 , and its same is said of work of each corresponding component.

[0153] In the 6th and 7th examples, although the interest parameter was only drawn from the subject-copy image and the depth map as a distance parameter, by this example, the information storage section 930 which accumulates a subject-copy image and interest parameter information was formed, and in order to perform efficient playback using an interest parameter at the time of playback further, the digest creation section 932 and the digest creation directions section 931 were formed.

[0154] According to this example, when reproducing such information recorded once, a user can use an interest parameter and can direct efficient playback. For example, or the scene interest

parameter which extracts the frame beyond a value with a frame interest parameter, and carries out digest playback and which lists the object from which the interest parameter beyond a certain value was obtained chooses it as high order and creates the digest for less than 5 minutes, directions of changing reproduction speed according to the magnitude of the value can be performed, and these are inputted by the digest creation directions section 931.
[0155] The digest creation section 932 creates a digest according to these directions.
[0156] (The 9th example) Next, the 9th example of this invention is described. The outline configuration of this example is shown in drawing 29 . This example uses the input of the depth map by the user also as a means to extract an object. That is, in the 6th - the 8th example, although the direct object extract was performed from the subject-copy image, by this example, it simplifies by performing object extract processing using a user's volition. For example, when a user pursues the same object by the hand of the same form over the whole dynamic image like drawing 30 , it inputs that it is the same object into a system. By this, the load of object extract processing can be made light.
[0157] Drawing 29 shows only the configuration until it extracts object information from a depth map and a subject-copy image. The depth map detecting element 940 detects a motion of a user's hand etc. as a depth map like the 6th - the 8th example. The configuration detecting element 941 recognizes the configuration of a hand from a depth map. For example, forms, such as 1 finger, 2 fingers, good one, and a par, are detected. The object division section 942 does not make a judgment what the object is, although means, such as edge detection, divide per object from the subject-copy image 945. Although an object can be pursued within the same scene, the same object cannot be judged before and after a scene change. The object specification section 943 judges the object pursued by the hand of the same form to be the same object, and outputs the object identification information 944. therefore -- if actuation which reproduces a dynamic image several times and pursues an object by hand is performed -- high -- not using a cost processor, ** can also obtain an object (it is the same as that of 6-8th examples) extract result. Moreover, though an object specification activity is done, the interest parameter to the object can also be inputted into coincidence with the distance value of a hand.
[0158] In the old example, the depth map was used as an input means of an interest parameter. Since a depth map is 1-dimensional information with two-dimensional breadth, the interest parameter grant to the whole two-dimensional information (one frame of a dynamic image, static image) can carry out to coincidence (for example, if a mouse is used, interest parameter grant will not be made to coincidence only to one point of an image). There is a pressure sensor array etc. as a device which can input the same information. This is what put in order and constituted the pressure sensor on the array, and can input two-dimensional distribution of the 1-dimensional information of a pressure. A pressure sensor array can be replaced with a depth map detecting element in the 6-8th examples. Moreover, if a pressure sensor array is constituted from a transparence member and it puts on a display, the environment which is easy to operate it rather than it can push a part with direct interest is realizable, looking at an image.
[0159] In addition, this invention is not limited to each example mentioned above, it is the range which does not deviate from the summary, and can deform variously and can be carried out.
[0160]
[Effect of the Invention] According to this invention, an evaluation value (for example, simple index of the interest parameter of a 1 yuan multiple value) can be given to multimedia information. This evaluation value is information to which a user can also give by easy actuation and also tends to process an equipment side. If this evaluation value is used, information processing and presentation according to a demand of users, such as epitome creation, can be realized by semi-automatic, and compaction of the time amount to which a user accesses information, and the increase in efficiency of an information classification and storing can be expected.
[0161] Thus, according to this invention, even if the supplied original information is a variety large quantity, the whole information is grasped efficiently for a short time, or it becomes easy to search for the target thing out of the information on the variety large quantity.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] The conceptual diagram showing the configuration of the information processor concerning the 1st example of this invention
[Drawing 2] The conceptual diagram showing the signal-processing approach of a sympathy news processor
[Drawing 3] The conceptual diagram showing the signal-processing approach of a sympathy news processor
[Drawing 4] The conceptual diagram showing the signal-processing approach of a sympathy news processor
[Drawing 5] The conceptual diagram showing the signal-processing approach of a sympathy news processor
[Drawing 6] The block diagram showing the configuration of a sympathy news processor
[Drawing 7] The conceptual diagram showing the signal-processing approach of a sympathy news processor
[Drawing 8] The block diagram showing the configuration of a sympathy news processor
[Drawing 9] The conceptual diagram showing the signal-processing approach of a sympathy news processor
[Drawing 10] The conceptual diagram showing the signal-processing approach of a sympathy news processor
[Drawing 11] The block diagram showing the outline configuration of the information processor concerning the 2nd example of this invention
[Drawing 12] The conceptual diagram showing the signal-processing approach of a sympathy news processor
[Drawing 13] The conceptual diagram showing the output data of a sympathy news processor
[Drawing 14] The conceptual diagram showing the signal-processing approach of a sympathy news processor
[Drawing 15] The block diagram showing the outline configuration of the information processor concerning the 3rd example of this invention
[Drawing 16] The conceptual diagram showing the signal-processing approach of a sympathy news processor
[Drawing 17] The block diagram showing the outline configuration of the information processor concerning the 4th example of this invention
[Drawing 18] The conceptual diagram showing the signal-processing approach of a sympathy news processor
[Drawing 19] The block diagram showing the outline configuration of the information processor concerning the 5th example of this invention
[Drawing 20] The conceptual diagram showing the signal-processing approach of a sympathy news processor
[Drawing 21] The conceptual diagram showing the input gestalt of a sympathy news processor
[Drawing 22] The conceptual diagram showing the input part of a sympathy news processor
[Drawing 23] The conceptual diagram showing the input part of a sympathy news processor

[Drawing 24] The conceptual diagram showing the signal-processing approach of a sympathy news processor
[Drawing 25] The conceptual diagram showing the signal-processing approach of a sympathy news processor
[Drawing 26] The block diagram showing the outline configuration of the information processor concerning the 6th example of this invention
[Drawing 27] The block diagram showing the outline configuration of the information processor concerning the 7th example of this invention
[Drawing 28] The block diagram showing the outline configuration of the information processor concerning the 8th example of this invention
[Drawing 29] The block diagram showing the outline configuration of the information processor concerning the 9th example of this invention
[Drawing 30] The conceptual diagram showing the input approach of a sympathy news processor

[Description of Notations]
201 -- An input device, 202 -- A display, 203 -- Loudspeaker, 204 -- The interest parameter processing section, 205 -- A control section, 206 -- Playback section, 207 -- A record medium, 300 -- The cursor location hysteresis information storage section, 301 -- Two-dimensional pattern recognition section, 302 -- A time amount control section, 303 -- An interest parameter transducer, 304 -- Decoder, 305 -- The Hara information storage section, 306 -- A mouse signal input terminal, 307 -- Video-signal output terminal, 310 -- A display and control section, 311 -- The display time measurement section, 312 -- Interest parameter transducer, 313 -- The Hara information storage section, 314 -- A mouse input terminal, 315 -- Image output terminal, 501 [-- Storage section,] -- A mouse, 502 -- A device driver, 503 -- Coordinate information, 504 505 [-- Interest distribution,] -- An are recording control section, 506 -- Image information, 507 -- The field presumption section, 509 510 -- The object interest decision section, 511 -- Object interest information, 512 -- Object field information, 513 -- The Records Department, 514 -- Object accumulation interest information, 515 -- The interest information decode section, 516 -- The interest information storage section, 517 -- Interest information processing section, 518 -- The playback section, 520 -- An output terminal, 605 -- The continuation group of a face field, 607 -- The continuation group of a coat field, 700 -- A display, 701 -- Interest input pad, 702 -- A screen, 703 -- An interest indicator, 704 -- Image recording playback section, 706 -- Displays 706 and 707 -- The interest input section, 709 -- Indicator composition section, 710 -- An object detecting element, 712 -- An object display, 713 -- Interest analyzor, 803 [-- Depth map information,] -- A face field, 804 -- A coat field, 901 -- A depth map detecting element, 902 903 -- A cursor display, 904 -- Frame interest parameter calculation section, 905 -- The valuation-basis amendment section, 906 -- A subject-copy image, 907 -- Scene change detecting element, 908 -- The scene interest parameter grant section, 909 -- Scene interest parameter, 910 -- The object extract section, 911 -- Object information, 912 -- Object interest parameter grant section, 913 -- Depth map information, 914 -- An object interest parameter, 915 -- Scene change information, 916 -- The time difference amendment section, 920 -- The image-processing section, 930 -- Information storage section, 931 [-- A configuration detecting element, 942 / -- The object division section, 943 / -- The object specification section, 944 / -- Object identification information, 945 / -- Subject-copy image] -- The digest creation directions section, 932 -- The digest creation section, 940 -- A depth map detecting element, 941

[Translation done.]